Volunteer Lake Assessment Program Individual Lake Reports

KOLELEMOOK LAKE, SPRINGFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	610	**Max. Depth (m):**	6.7	**Flushing Rate (yr^{-1}):**	0.9
Surface Area (Ac.):	99	**Mean Depth (m):**	4.1	**P Retention Coef:**	0.71
Shore Length (m):	2,900	**Volume (m^3):**	1,623,000	**Elevation (ft):**	1387

TROPHIC CLASSIFICATION

Year	Trophic class
1980	OLIGOTROPHIC
1996	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

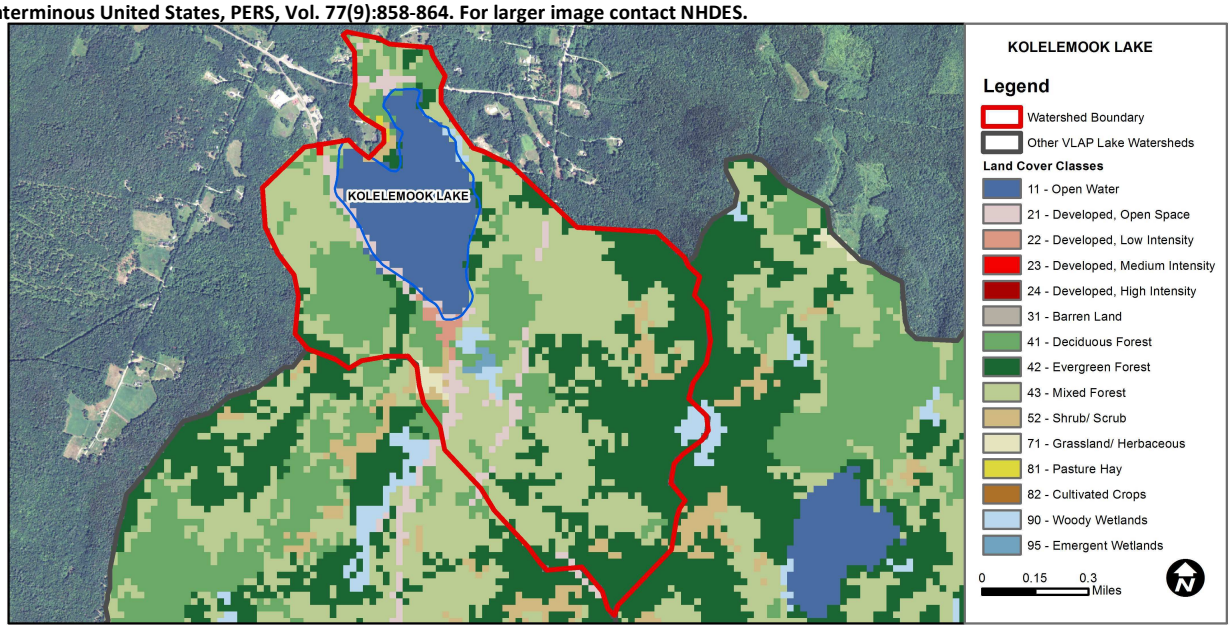
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

KOLEMOOK LAKE - TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

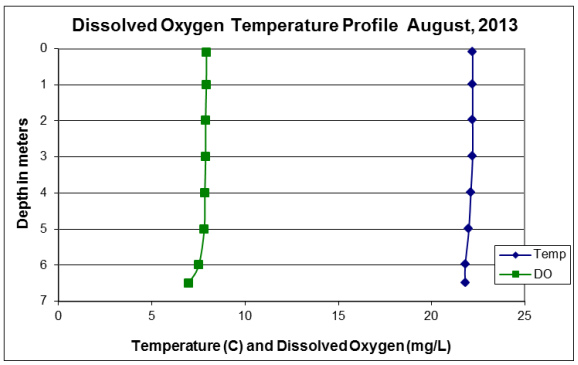


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	13.7	Barren Land	0	Grassland/Herbaceous	0.47
Developed-Open Space	3.88	Deciduous Forest	14.7	Pasture Hay	0.2
Developed-Low Intensity	0.64	Evergreen Forest	26.33	Cultivated Crops	0
Developed-Medium Intensity	0.07	Mixed Forest	35.94	Woody Wetlands	1.58
Developed-High Intensity	0	Shrub-Scrub	2.16	Emergent Wetlands	0.34

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
KOLELEMOOK LAKE, SPRINGFIELD, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were low and well below the state median throughout the summer. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!
- **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity was slightly elevated throughout the summer. Historical trend analysis indicates significantly increasing (worsening) epilimnetic conductivity since monitoring began. However, epilimnetic conductivity has decreased steadily since 2008.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low throughout the summer. Historical trend analysis indicates relatively stable epilimnetic phosphorus with high variability between years.
- **TRANSPARENCY:** Transparency was slightly lower in June likely due to the significant storm event prior to sampling, however transparency remained high throughout the summer and the Secchi disk was visible on the lake bottom in August. Historical trend analysis indicates significantly increasing (improving) transparency since monitoring began. We hope to see this continue!
- **TURBIDITY:** Deep spot turbidity was low throughout the summer.
- **PH:** June epilimnetic pH levels were lower than desirable. Hypolimnetic pH was in a good range throughout the summer. Historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.
- **DISSOLVED OXYGEN:** Dissolved oxygen levels were high throughout the water column and sufficient to support aquatic life.
- **RECOMMENDED ACTIONS:** The improving chlorophyll and transparency trends are a positive sign and hopefully reflect lake and watershed residents' efforts to reduce their impact on the lake. The worsening conductivity trend is a concern; however conductivity levels have decreased steadily decreased since 2008 due to association efforts to implement a low salt zone. We hope to see the conductivity continue to decrease in the coming years. Keep monitoring and keep up the great work!



NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

Table 1. 2013 Average Water Quality Data for KOLELEMOOK LAKE

Station	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
Epilimnion	7.77	1.83	17	85.9	6	5.75	6.30	0.50	6.60
Hypolimnion				86.6	6			0.44	6.83

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Degrading	Data significantly decreasing.	Chlorophyll-a	Improving	Data significantly decreasing
Conductivity	Degrading	Data significantly increasing.	Transparency	Improving	Data significantly increasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data highly variable.